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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/713,093	11/17/2003	Kia Silverbrook	ZF196US	6436
24011	7590	07/28/2004	EXAMINER	
SILVERBROOK RESEARCH PTY LTD 393 DARLING STREET BALMAIN, 2041 AUSTRALIA			GORDON, RAQUEL YVETTE	
			ART UNIT	PAPER NUMBER
			2853	

DATE MAILED: 07/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/713,093

Applicant(s)

SILVERBROOK, KIA

Examiner

Raquel Y. Gordon

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 17 November 2003 (this application).
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 9 is/are rejected.
- 7) ☒ Claim(s) 7 and 8 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☐ Certified copies of the priority documents have been received.
  - 2) ☒ Certified copies of the priority documents have been received in Application No. 10/302,275.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 11/17/2003.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

***Double Patenting***

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

**Claims 1-6, and 9 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-8 of copending Application No. 10/713071 in view of Silverbrook (US6666543).**

1. A micro-electromechanical liquid ejection device that comprises  
a substrate that incorporates drive circuitry (claim 1);  
an elongate drive member, the drive member being fast with the substrate at a fixed end and incorporating an electrical circuit that is in electrical contact with the drive circuitry to receive an electrical signal from the drive circuitry, the drive member being configured so that a free end of the drive member is displaced relative to the substrate on receipt of the electrical signal (claim 1);

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a motion-transmitting member that is fast with the free end of the drive member so that the motion-transmitting member is displaced together with the free end (claim 1); and

an elongate liquid displacement member that is fast at one end with the motion-transmitting member and extends into the nozzle chamber to be displaced together with the motion-transmitting member to eject liquid from the ejection port (claim 1);

2. A liquid ejection device as claimed in claim 1, in which the motion-transmitting member defines a first class lever and has an effort formation that is fast with the free end of the drive member, a load formation that is fast with the liquid displacement member and a fulcrum formation that is fast with the substrate, the effort and load formations being pivotal with respect to the fulcrum formation (claim 2);

3. A liquid ejection device as claimed in claim 1, in which the drive member is a thermal bend actuator of the type that uses differential thermal expansion to achieve displacement (claim 3);

4. A liquid ejection device as claimed in claim 3, in which the thermal bend actuator is of a conductive material that is capable of thermal expansion and has an active portion and a passive portion, the active portion defining the electrical circuit, in the form of a heating circuit, so that the active portion is heated and expands relative to the passive portion on receipt of the electrical signal to generate displacement of the actuator in one

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direction and termination of the signal results in contraction of the active portion to generate displacement of the actuator in an opposite direction (claim 4);

5. A liquid ejection device as claimed in claim 4, in which the conductive material of the actuator is resiliently flexible to facilitate said displacement of the actuator in the opposite direction (claim 5);

6. A liquid ejection device as claimed in claim 2, in which the drive member, the working member and the fulcrum formation are of the same material, while the effort formation and the load formation are of a different material to that of the drive member and the working member (claim 6);

9. A printhead chip that comprises a plurality of liquid ejection devices as claimed in claim 1 (claim 8).

**However, Application 10/713071 does not teach:**

nozzle chamber walls that are positioned on the substrate to define a nozzle chamber, the nozzle chamber walls including a roof wall that defines an ejection port in fluid communication with the nozzle chamber, the substrate defining an inlet passage through the substrate and into the nozzle chamber.

**Nevertheless, Silverbrook teaches:**

nozzle chamber walls that are positioned on the substrate to define a nozzle chamber, the nozzle chamber walls including a roof wall that defines an ejection port in

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fluid communication with the nozzle chamber, the substrate defining an inlet passage through the substrate and into the nozzle chamber (claim 9).

It would have been obvious of one of ordinary skill at the time the invention was made to provide this obvious variation by Application 10/713071 by the aforementioned teaching of Silverbrook (US 6666543) for the purpose of providing a manner in which to efficiently eject ink from the type of apparatus at issue, as taught by Silverbrook (US 6666543).

This is a provisional obviousness-type double patenting rejection.

### ***Allowable Subject Matter***

Claims 7 and 8 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

### ***Reasons for Indication of Allowable Subject Matter***

The following is a statement of reasons for the indication of allowable subject matter.

**The following claimed combination is not taught by the prior art of record:**

7. A liquid ejection device as claimed in claim 6, in which the fulcrum formation is configured to facilitate resilient deformation of the fulcrum formation to accommodate

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movement of the effort formation and the load formation. Further, intervening claim 6 prevents application 10/713071 from teaching the claim limitations of instant claim 7.

**Further, the following claimed combination is not taught by the prior art of record:**

8. A liquid ejection device as claimed in claim 2, in which the fulcrum formation and the load formation define one of the nozzle chamber walls, the roof wall and the load formation defining a gap to permit relative movement of the load formation and the roof wall, the load formation and the roof wall further defining meniscus anchor points to permit liquid in the nozzle chamber to form a meniscus that spans the gap so that the meniscus can define a fluidic seal to inhibit the egress of ink from the nozzle chamber.

#### ***Contact Information***

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Raquel Y. Gordon, whose telephone number is (703) 308-0022. The Examiner can normally be reached on M Tu Th and F 8:30-6:00. Effective February 11, 2003, Ex. Gordon, can be reached at the new PTO facility at (571) 272-2145.

If attempts to reach the examiner by telephone are unsuccessful, the Examiner's supervisor, Stephen Meier can be reached on 703-308-4896. Effective February 11,

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2003, the supervisor can be reached at the new PTO facility at (571) 272-2149. The fax phone number for the organization where this application or proceeding is assigned is (703) 305-3432. A new fax number will be forthcoming.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956. A new status inquiry number will be forthcoming.



Raquel Y. Gordon  
Primary Examiner  
Art Unit 2853  
July 23, 2004

**RAQUEL GORDON  
PRIMARY EXAMINER**